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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/535,217	05/17/2005	Malcolm George Leavesley	GJ-265J	9410
7590	06/07/2006		EXAMINER	
Iandiorio & Teska 260 Bear Hill Road Waltham, MA 02451-1018			TRIEU, THAI BA	
			ART UNIT	PAPER NUMBER
			3748	

DATE MAILED: 06/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application N .	Applicant(s)
	10/535,217 Examiner Thai-Ba Trieu	LEAVESLEY, MALCOLM GEORGE Art Unit 3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 17 May 2005.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-7,10-22,24-27,29 and 30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-7,10-13,21,22,24-27,29 and 30 is/are rejected.
- 7) Claim(s) 14-20 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 17 May 2005 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>05/17/2005</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

The Preliminary Amendment filed on May 17, 2005 is acknowledged. Claims 5-7, 10-12, 14, 17, 20-22, 24-27, and 29-30 were amended; claims 8-9, 23, and 28 were cancelled.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character “**26**” has been used to designate both “**control means**” and “**rod**” (See Figure 19). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Sp cification

I. IN THE ABSTRACT:

Since the abstract is too long, applicant is required to submit a substitute abstract to meet the requirement set forth below:

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

II. IN THE SPECIFICATION:

The disclosure is objected to because of the following headings of the specification are missing, such as :

- ***Background of the invention.***
- ***Brief summary of the invention.***
- ***Brief Description of the Drawing(s).***
- ***Detailed Description of the Preferred embodiments.***

Appropriate correction is required.

Claim Objections

Claims 1-7, 10-22, 24-27, and 29-30 are objected to because of the following informalities:

- In claim 1, line 1, "***Variable turbocharger apparatus***" should be replaced by – **A variable turbocharger apparatus --.**
 - In claims 2-7, 10-22, 24-27, and 29-30, line 1, "***Variable turbocharger apparatus***" should be replaced by – **The variable turbocharger apparatus --.**

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 1 and its dependent claims 2-7, 10-22, 24-27, and 29-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, line 20; claim 5, line 2 the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-4, 6-7, 10, 21, 27, and 29 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 3-6, and 8-12 of U.S. Patent No. 6,928,816 B2, in view of Neil Watson (Pub. Number GB 2105789 A).

Leavesley (Patent Number 6,928,816 B2) discloses a variable turbocharger apparatus comprising:

- a housing;
- a compressor mounted for rotation in the housing;
- a turbine mounted for rotation in the housing;
- a first inlet for enabling air to be conducted to the compressor;

an outlet for enabling exhaust gases from the engine to be conducted to the turbine;

a chamber surrounding the turbine and receiving the exhaust gases from the second inlet before the exhaust gases are conducted to the turbine;

a bearing assembly for permitting the rotation of the turbine;

vanes mounted in the chamber and accurately directing exhaust gases on to the turbine;

a piston being slidable and positioned between the housing and the turbine; and

control means connected to the piston and controlling the sliding movement of the piston;

the piston having an end which is nearest the bearing assembly and which defines a gap, the size of the gap being effective to control the amount of the exhaust gases that act on the turbine thereby accurately controlling the speed of rotation of the turbine, and thereby the amount of air conducted by the compressor through the outlet to the engine;

in which the end of the piston is such that it has a flange extending radially outwardly;

in which the flange has slots for receiving vanes (See Claim 1);

in which the slots are open slots extending inwardly from the periphery of the flange, or closed slots in the flange (See Claim 5);

a heat shield for shielding the bearing assembly from heat from the exhaust gases (See Claim 8);

in which the heat shield is selected from the group consisting of a ring shaped heat shield; a disc shaped heat shield having an outer ring portion, an inner wall portion, and an aperture through the inner wall portion ; and a floating heat shield that is held in place under pressure by spring means (See Claims 9 and 10);

in which the vanes are mounted on the heat shield (See Claim 11);

in which the piston has a first abutment for forming a seal against a mating surface thereby to prevent lost of the exhaust gases between the abutment and the mating surface (See Claim 12);

in which the control means is an electronic control means, which operates as part of the engine management control system (See Claim 6).

However, Leavesley fails to disclose at least one bypass aperture and its performing function.

Neil Watson teaches that it is conventional in the variable geometry turbocharger art, to utilize at least one bypass aperture (30) which is closed when the size of the gap is at a minimum, and which opens when the gap reaches a predetermined size, the opening of the bypass aperture (30) being such as to allow exhaust gases that are not required for acting on the turbine to bypass the turbine (See Figure 4).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized at least one bypass aperture and its performing function, as taught by Neil Watson, to improve the efficiency of the Leavesley device.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 12, and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Sumser et al. (Patent Number 5,855,117).

Sumser discloses a variable turbocharger apparatus comprising:

a housing (1);

a compressor (Not shown a well-known component of a turbocharger) mounted for rotation in the housing (1);

a turbine (7) mounted for rotation in the housing (1);

a first inlet (Not shown a well-known component of a turbocharger) for enabling air to be conducted to the compressor (Not shown a well-known component of a turbocharger);

an outlet (Not shown a well-known component of a turbocharger) for enabling air from the compressor (Not shown a well-known component of a turbocharger) to be conducted to an engine (Not shown);

a second inlet (via 2, 3) for enabling exhaust gases from the engine to be conducted to the turbine (7) in order to rotate the turbine (7);

a chamber (2, 3) surrounding the turbine (7) and receiving the exhaust gases from the second inlet before the exhaust gases are conducted to the turbine;

a bearing assembly (Not shown a well-known component of a turbocharger) for permitting the rotation of the turbine;

vanes (9, 10) mounted in the chamber (2, 3) and accurately directing exhaust gases on to the turbine (7);

a piston (4) being slidable and positioned between the housing (1) and the turbine (7); and

control means (Not shown) connected to the piston and controlling the sliding movement of the piston;

the piston (4) having an end which is nearest the bearing assembly and which defines a gap (Not Numbered), the size of the gap being effective to control the amount of the exhaust gases that act on the turbine thereby accurately controlling the speed of rotation of the turbine, and thereby the amount of air conducted by the compressor through the outlet to the engine, and the variable turbocharger apparatus having at least one bypass aperture(12) which is closed when the size of the gap is at a minimum, and which opens when the gap reaches a predetermined size, the opening of the bypass aperture (12) being such as to allow exhaust

gases that are not required for acting on the turbine to bypass the turbine (See Figures 1-3, Column 3, lines 25-64, and Column 4, lines 1-35);
in which the bypass aperture (12) is in an insert (6); and
in which the chamber (2, 3) is a volute (See Figures 1-3).

Claims 1, 2, 6, 21-22, 25 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Engels et al. (Patent Number DE 199 24 228 A1).

Engels discloses a variable turbocharger apparatus comprising:

- a housing (Not Numbered);
- a compressor (3) mounted for rotation in the housing;
- a turbine (2) mounted for rotation in the housing;
- a first inlet (Not Numbered) for enabling air to be conducted to the compressor;
- an outlet (Not Numbered) for enabling exhaust gases from the engine to be conducted to the turbine;
- a second inlet (via 12) for enabling exhaust gases from the engine to be conducted to the turbine (2) in order to rotate the turbine (2);
- a chamber (8b) surrounding the turbine and receiving the exhaust gases from the second inlet (12) before the exhaust gases are conducted to the turbine (2);
- a bearing assembly (Not Numbered) for permitting the rotation of the turbine (2);

vanes (11) mounted in the chamber and accurately directing exhaust gases on to the turbine (2);

a piston (15, 23, 24) being slideable and positioned between the housing (5) and the turbine (2); and

control means (18) connected to the piston and controlling the sliding movement of the piston;

the piston having an end which is nearest the bearing assembly and which defines a gap, the size of the gap being effective to control the amount of the exhaust gases that act on the turbine thereby accurately controlling the speed of rotation of the turbine, and thereby the amount of air conducted by the compressor through the outlet to the engine, and the variable turbocharger apparatus having at least one bypass aperture (22, 19) which is closed when the size of the gap (25) is at a minimum, and which opens when the gap reaches a predetermined size, the opening of the bypass aperture being such as to allow exhaust gases that are not required for acting on the turbine to bypass the turbine (See Figures 1-3b);

in which the end of the piston is such that it has a flange extending radially outwardly (See Figure 1-3b);

a heat shield (Not Numbered) for shielding the bearing assembly from heat from the exhaust gases(See Figure 1-3b);

in which the heat shield is selected from the group consisting of a ring shaped heat shield; a disc shaped heat shield having an outer ring portion, an

inner wall portion, and an aperture through the inner wall portion (Not Numbered) (See Figures 1-3b); and a floating heat shield that is held in place under pressure by spring means;

in which the piston has a first abutment for forming a seal (21) against a mating surface thereby to prevent lost of the exhaust gases between the abutment and the mating surface (See Figures 1-3b);

in which the mating surface is a mating surface on a part of the housing (5), or is mating surface on the insert (See Figures 1-3b);

a sealing ring (27) for forming an auxiliary seal for preventing loss of any of the exhaust gas that pass between the first abutment and the mating surface (See Figure 3a);

in which the chamber (8a, 8b) is a volute (See Figures 1-3b).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-5, 7, 10, 24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eng Is t al. (Patent Number DE 199 24 228 A1), in view of Dal et al. (Patent Number 5,441,383).

Engels discloses the invention as recited in the rejection of claim 1; however, Engels fails to disclose the structural details of the piston, the slots, and the heat shield; vanes being mounted on the heat shield; a ring on the piston for setting the size of the gap at a start condition; the piston has a second abutment for engaging against the end of the vanes, thereby setting a gap when the piston is in its closed position; and the ring also being such that it acts as an abutment for preventing gas leakage.

Dale teaches that it is conventional in the variable turbocharger art, to utilize the end of the piston (20, 70) having a flange extending radially outwardly (See Figures 1 and 5); the flange having slots (72, 77) for receiving vanes (See Figures 6b and 7a); the slots (77) being open slots (72) extending inwardly from the periphery of the flange (See Figure 7a), or closed slots in the flange (See Figure 6b); the flange allowing gases to bypass a back face of the flange whilst still allowing accurate gas onto the turbine (See Figures 1 and 5); the heat shield (21, 71) being selected from the group consisting of a ring shaped heat shield; a disc shaped heat shield having an outer ring portion, an inner wall portion, and an aperture through the inner wall portion (See Figure 1, 5, 6a); and a floating heat shield that is held in place under pressure by spring means; and vanes being mounted on the heat shield (See Figures 6a-6b; and Column 5, lines 3-11); the piston has a second abutment (23) for engaging against the end of the vanes, thereby setting a gap when the piston is in its closed position; and the ring (24) also being such that it acts as an abutment for preventing gas leakage (See Figures 1 and 5)

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized the structural details of the piston, the slots and the

heat shield; vanes being mounted on the heat shield; the piston has a second abutment for engaging against the end of the vanes, thereby setting a gap when the piston is in its closed position; and the ring also being such that it acts as an abutment for preventing gas leakage, as taught by Dale, to improve the performance efficiency the Engels device.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Sumser (Patent Number 5,855,117), or Engels et al. (Patent Number DE 199 24 228 A1), in view of Design choice.

Sumser/Engels discloses the invention as recited in the rejection of claim 1; however, Sumser/Engels fails to disclose the shape of the bypass aperture.

One having an ordinary skill in the turbocharger art, would have found the bypass aperture being of a V-shape in order that gases are able to bypass in a controlled manner in order to prevent turbine surging, as a matter of design choice depending on the engine requirements. Moreover, there is nothing in the record, which establishes that the claimed the V-shape bypass aperture, presents a novel of unexpected result (See *In re Kuhle*, 526 F. 2d 553, 188 USPQ 7 (CCPA 1975)).

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Sumser (Patent Number 5,855,117), or Engels et al. (Patent Number DE 199 24 228 A1), in view of Design choice.

Sumser/Engels discloses the invention as recited in the rejection of claim 1; however, Sumser/Engels fails to disclose a plurality of the bypass apertures.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a plurality of the bypass apertures, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8 (CA 7 1977).

Claims 27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Engels et al. (Patent Number DE 199 24 228 A1), in view either Leavesley (Pub. Number GB 2 271 814 A), or Leavesley (Pub. Number EP 678 657 A2).

Engels discloses the invention as recited above; however Engels fails to disclose the control means including a fork member which is connected to the piston on two opposed sides, or in which the control means includes a U-shaped member which is connected to a face of the piston; and the control means being an electronic control means which operates as part of the engine management control system.

Leavesly teaches that it is conventional in the turbocharger art, to utilize the control means including a fork member which is connected to the piston on two opposed sides, or in which the control means includes a U-shaped member which is connected to a face of the piston; and the control means being an electronic control means which operates as part of the engine management control system (See Figure 1, Page 7, lines 24-25 and Page 8, lines 1-19 of '814 A; and Figure 1, Column 2, lines 51-58, and Column 3, lines 1-35 of '657 A2).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized the control means including a fork member which

is connected to the piston on two opposed sides, or in which the control means includes a U-shaped member which is connected to a face of the piston; and the control means being an electronic control means which operates as part of the engine management control system, as taught by Leavesly, to improve the efficiency of the Engels device.

Allowable Subject Matter

Claims 14-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The IDS (PTO-1449) filed on May 17, 2005 has been considered. An initialized copy is attached hereto.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Ruess (US Patent Number 7,010,918 B2) discloses an internal combustion engine with motor brake.
- Döring et al. (US Patent Number 6,478,536 B2) disclose an exhaust turbine.
- Döring et al. (US Patent Number 6,374,611 B2) disclose an exhaust turbine for a turbocharger.
- Tyler (US Patent Number 4,802,817) discloses a centrifugal pump with self-regulating impeller discharge shutter.

- Hasbrouck (US Patent Number 2,431,398) discloses a supercharger with controllable inlet.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai-Ba Trieu whose telephone number is (571) 272-4867. The examiner can normally be reached on Monday - Thursday (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TTB
May 17,2006


Thai-Ba Trieu
Primary Examiner
Art Unit 3748